TMDL Implementation Plan
for
Kinchafoonee Creek
in
Webster, Sumter and Terrell Counties

prepared by
Middle Flint Regional Development Center

March 31, 2001
revised
April 12, 2001

Kinchafoonee Creek
Kinchafoonee-Muckalee Creek Basin
Webster, Sumter and Terrell Counties

Background

On the basis of an insufficient number of samples collected in1995, and subsequently processed employing the most probable number procedure, Kinchafoonee Creek was placed on the 303d list. Collection methodology did not conform to commonly accepted standards concerning fecal coliform sampling of recreational waters. The Flint River Basin Management Plan 1997 includes a statement acknowledging this sampling was not conducted at a sufficient frequency to enable a definitive determination of whether the monthly geometric mean criterion specified in the state water quality standard was actually violated.

Accepted procedure calls for at least four samples collected within a thirty-day period at intervals of not less than twenty-four hours. In the geometric means calculated therefrom, fecal conifers are not to exceed 200 cfu/100 ml for the months of May-October, and 1000 cfu/100 ml during the months of November-April. Any one sample must not exceed 4000 cfu/100 ml. All samples taken at the Kinchafoonee collection site met this single-sample threshold. However, in the absence of data sufficient to generate a monthly geometric mean, EPA directed that a 400 cfu/100 ml threshold be applied to samples collected during the months May-October. Two samples taken on Kinchafoonee Creek exceeded this EPA threshold.

In addition, the computer model used does not appear to provide adequately for the effects of rainfall. Recent research by Stone Barrette (South Carolina Department of Health and Environmental Control) and Hank McKellar (University of South Carolina) indicate sharp increases in coliform levels, from 200 cfu/100 ml in base flow to >2000 cfu/100 ml in storm flow, were found throughout watersheds with peaks in forested areas. Based on rainfall information available from the Plains Experiment Station, heavy rains (2.68 inches for 8/19/95; 1.35 inches for 8/20/95, and 2.69 inches for 8/21/95 inches) occurred prior to the high fecal coliform counts in August. Rainfalls may also have impacted the fecal coliform counts in July, September, and December 1995. Drought conditions present for the past 3 years could greatly impact the loading of fecal coliforms from agricultural areas.

Despite questionable sampling methodology and modeling parameters, a twenty-three mile segment of Kinchafoonee Creek has been 303d listed, with a TMDL reduction strategy for obtaining and maintaining the fecal coliform target level of 175 cfu/100 ml set at a 55% reduction in loading and/or resultant concentrations from agriculture or pasture land uses.

Land Uses Coincident to Water Quality Sampling Which Resulted in 303d Listing

At the time water samples were collected Webster County had approximately ten small, family-owned and operated pig farms located in the watershed. Although none were located on the creek, some were located on tributaries. The producers with herds large enough to necessitate waste management applied the material on their farm, timing the land application in accordance with best management practices. There were even fewer beef cattle farms, again relatively small, family-owned enterprises. A very small number of poultry farms were operating at the time. Although there was reportedly some land application of poultry litter in the mid 1990s, this was not a widespread practice.

The Kinchafoonee comprises the boundary between Sumter and Terrell Counties. The portions of both counties in the Kinchafoonee drainage basin are heavy in row-crop agricultural production and timber. Here the Kinchafoonee is buffered heavily with marsh, swamp and timber. In Sumter County a

parallel timberline buffers the creek by approximately 3,500 feet, while in Terrell County the buffer is more variable, ranging from approximately 2,000-3,000 feet, limiting direct access to the waterway. Similar buffering, though not as deep, characterizes Bear Creek, the major tributary in this vicinity flowing from Webster County. Little or no livestock production was occurring in this area of Sumter and Terrell Counties.

There is not a municipal wastewater collection/treatment system located in the watershed, eliminating leaking lines and illicit sanitary sewer connections as a possible source of fecal coliform. All human fecal matter was treated via on-site sewage management systems.

Webster is one of the state's least populated counties, recently recording a population of 2,390 (2000 Census). In a February, 1994 survey, approximately 825 residential structures (approximately 10% vacant) were distributed across Webster County within the Kinchafoonee watershed (an area of approximately 200 square miles), all on septic tanks. None of these residences were identified within 2,500-3000 feet of the creek channel. In addition, it is rare for residences to be located within 1,000 feet of any of the tributary channels. A deep setback generally holds true within the Town of Preston as well.

That portion of Sumter County in the watershed (approximately 60 square miles) is also sparsely developed (275 residential structures on septic tanks), as is the case in Terrell County. The broad dispersal of these small facilities limits the likelihood that even malfunctioning systems would be the source of fecal coliform in the Kinchafoonee.

Current Land Use Activities

The local agricultural economy has changed significantly since the referenced water samples were collected in 1995. Hogs and pigs in Webster County decreased in number by 85% between January in 1995 and 1998, the latest date for which statistical information has been disseminated. Sumter and Terrell recorded decreases of 59% and 100%, respectively. The number of cattle in Webster County decreased by 37% between January in 1995 and 1999; Sumter decreased 40% and Terrell decreased 29%. The decreased presence of farm animals is not a sudden occurrence, but a general trend reflective of the pervasive weakness in livestock markets. Consequently, the amount of fecal matter generated by domestic livestock during this recent period decreased by at least 50%.

To the extent land application of poultry litter might have possibly been a contributor in the past, recent activities by the Poultry Federation have decreased the chances of it continuing. The federation has developed a nutrient management planning program, using neighboring Marion County as a model, by which the nutrient needs of a specific land site are matched with the nutritional value of the litter. Already being implemented, this practice will reduce the potential of excessive and indiscriminate application of poultry litter. To benefit from the full value of the litter, the soil additive must be tilled into the soil before rainfall. This serves to further reduce the chances of storm wash transporting fecal coliform to surface waters.

Between the 1990 and 2000 Censuses the population of Webster County increased by approximately 125. The number of residents in unincorporated Sumter and Terrell Counties recorded increases of 2,500 and 500, respectively. Very little, if any, of these latter increases occurred within the Kinchafoonee drainage basin, however, because this area is the most distant from both counties' economic centers. The installation of septic tanks resulting from population increase within the watershed has not been of a scale sufficient to influence the level of fecal coliform in Kinchafoonee Creek. As a result of current permitting and inspection procedures, these new facilities would be least likely to be sources of coliform.

Stakeholder Participation

Owners of land contiguous to the impaired creek segment were identified from courthouse tax records. Local government officials, scientists from Georgia Southwestern State University, Farm Bureau officers and agricultural experts from County Extension Offices and the Natural Resources and Conservation Service were also identified. Fifty-four personalized invitations, some with a copy of the videocassette Watershed Wisdom, were mailed, and a notice inviting public participation was published in two local newspapers. Thirty-three attended the March 15 meeting.

The meeting opened with a viewing of the fifteen-minute videocassette tape Watershed Wisdom, after which the purpose of the meeting was clearly explained. During the two-hour meeting participants shared their knowledge of possible contributing sources and suggested possible corrective measures.

Information was presented depicting the sparsity of housing (and septic tank) development within the watershed, especially in proximity to the Creek and tributaries. This fact, plus the absence of a public sanitary sewer collection and treatment system seemed to eliminate a human source of the fecal. Agricultural personnel described the reduced numbers of livestock.
Information obtained prior to the meeting suggested cattle on one farm might have seasonal access to the Kinchafoonee. The farm's boundary at this particular location forms an acute angle confining the cattle's exposure to a small area, not a linear distance along the creek front. In response to one question, a professor from the University stated the reported lack of sediment in the creek was suggestive of relatively little runoff. There was reported not to be a significant feral hog presence, although the number of wild turkey along the Kinchafoonee has apparently increased significantly. It was explained that the presence of beaver ponds in tributaries tends to reduce fecal presence in the creek. With a bacterial life span of 10-14 days, any time spent in the impounded area reduces the period of creek exposure. It was reported that hunters had been seen disposing of deer entrails in creeks.

Monitoring Plan

Water samples from only one site (Prison Farm Road in Lee County, 3.6 miles west of U. S. Highway 19 and 5.2 miles northwest of Leesburg) were used in assessing water quality of the lengthy segment of Kinchafoonee Creek placed on the 303d list. With many natural and land use features seeming to refute the likelihood that excessive fecal bacteria would be present, a more extensive program of sample collection will facilitate/enable confirmation of the presence of fecal, and the accurate identification of possible source(s) of the contamination. All sampling and subsequent analyses will be performed in compliance with 40 CFR 136. Weekly water sampling over the course of the first year will be needed to establish a base flow in the Creek.

Five sites are proposed for sampling. These five sites segment the impaired stream into roughly equal distances. If excessive bacteria counts are recorded, the segmented sampling methodology will facilitate source identification.

Monitor Site #1 It is proposed that sampling be resumed at the Lee County site where previous collections, and subsequent modeling, resulted in 303d listing.

Monitor Site #2 This is the nearest, accessible site downstream of Sumter County.

Monitor Site #3 This site on GA Highway 45 is immediately downstream of a tributary on which a potential point source contributor is located on the Webster-Sumter County line. This is also the first proposed site downstream of the Town of Preston.

Monitor Site #4 Georgia Highway 41 in Preston

Monitor Site #5 Webster County's northernmost creek crossing, Churchill Road (CR 123), will be useful in helping identify whether sites in neighboring Marion County is a potential source.

To establish a base flow from which to accurately determine the presence necessary for subsequent monitoring of plan effectiveness, weekly testing is proposed throughout the initial year of plan implementation.

If the necessary funding is made available, simultaneous sampling will expedite source identification and correction. In absence of sufficient funding a less desirable, staged sampling procedure will be undertaken, progressing upstream until a site "above" the apparent discharge site is documented. Because initial investigation has not suggested an apparent source of the fecal coliform, i.e., human v non-human, alternative bacteriological testing may be employed to facilitate positive results. Georgia Southwestern State University has been actively involved in environmental monitoring activities and studies for many years; however, the lab is not certified. An additional component of this plan is to obtain lab certification for the University to facilitate its participation in sampling and analysis.

Two related implementation activities will include, (1) review of agricultural BMPs in use to identify possible instances of nonconformance, and (2) development, in conjunction with DNR, of hunter education training incorporating information on the environmental risk of indiscriminate disposal of wild game entrails in waterways.

STATE OF GEORGIA

TMDL IMPLEMENTATION PLAN FOR: KINCHAFOONEE CREEK (STREAM) FECAL COLIFORM (PARAMETER) RIVER BASIN: FLINT

PLAN DATE: March 31, 2001

Prepared by: Gerald Mixon Middle Flint Regional Development Center Address: 228 West Lamar Street City: Americus State: GA Zip: 31709 e-mail: gmixon@sowega.net Date Submitted to EPD: March 31, 2001	Or Prepared By: Address: City: State: Zip: e-mail: Date Submitted to EPD:

General Information

Obtain this information from the TMDL document or other information. When completed, this document will be a self-contained report independent of the TMDL document.

Significant Stakeholders

Identify local governments, agricultural organizations or significant land holders, commercial forestry organizations, businesses and industries, and local organizations including environmental groups with a major interest in this water body.

Additional stakeholders identified on page 8.

TMDL ID (to be entered by EPD)	FLT0000003	Name/Organization	Webster County Board of Commissioners				
Water body name	Kinchafoonee Creek	Address	P. O. Box 29				
HUC basin name	Kinchafoonee-Muckalee Cr	City	Preston	State	GA	Zip	31824
HUC number	03130007	Phone	229-828-5775			e-mail	
Primary county	Webster	Name/Organization	Town of Preston				
Secondary county	Sumter	Address	P. O. Box 37				
Primary RDC	Middle Flint	City	Preston	State	GA	Zip	31824
Secondary RDC		Phone	229-828-2975			e-mail	
Water body location	Webster County	Name/Organization	Webster County Farm Bureau				
	Sumter/Terrell Co. line	Address	136 Greenwood Drive				
Miles or area impacted	23 miles	City	Americus	State	GA	Zip	31709
Parameter addressed in plan	Fecal coliform	Phone				e-mail	
Water use classification	fishing	Name/Organization	Sumter County Board of Commissioners				
Degree of impairment	Partially supporting use	Address	P. O. Box 295				
	Not supporting use X	City	Americus	State	GA	Zip	31709
Date TMDL approved by EPA		Phone	229-924-3090			e-mail	
Impairment due to	Point sources	Name/Organization	Terrell County Board of Commissioners				
	Nonpoint sources X	Address	P. O. Box 525				
	Both	City	Dawson	State	GA	Zip	31742-0525
Point source-Form A; Nonpoint source-Form B; Both-Form A+B+C		Phone	229-995-4476			e-mail	

If more, add to comments on last page.

SUMMARY OF ALLOCATION MODEL RESULTS FROM TMDL DOCUMENT (existing load, target TMDL, and needed reduction)

EXISTING LOAD	TARGET TMDL	NEEDED REDUCTION
323cfu/100ml	175 cfu/100ml	148 cfu/1ooml

I. IDENTIFY NONPOINT SOURCE CATEGORIES AND SUBCATEGORIES OR INDIVIDUAL SOURCES WHICH MUST BE CONTROLLED TO IMPLEMENT LOAD ALLOCATIONS:

List major nonpoint sources contributing to impairment including those identified in TMDL document.

SOURCE	**DESCRIPTION OF CONTRIBUTION TO IMPAIRMENT**	**RECOMMENDED LOAD REDUCTION (FROM TMDL)**
Agricultural	Agriculture or pasture land	55%

II. DESCRIBE ANY REGULATORY OR VOLUNTARY ACTIONS INCLUDING MANAGEMENT MEASURES OR OTHER CONTROLS BY GOVERNMENTS OR INDIVIDUALS THAT WILL HELP ACHIEVE THE LOAD ALLOCATIONS IN THE TMDL:

See the attachment for more instructions.

Existing or required regulatory actions

RESPONSIBLE GOVERNMENT, ORGANIZATION OR ENTITY	NAME OF REGULATION/ORDINANCE	DESCRIPTION	ENACTED OR PROJECTED DATE (mm/yy)	STATUS
Webster Co Health Dept.	State rules and regs. for on-site sewage mgt. sys.	Regulates installation of septic tanks	01-98	active
Sumter Co Health Dept.	State rules and regs. for on-site sewage mgt. sys.	Regulates installation of septic tanks	01-98	active
Sumter County	Zoning ordinance	Land development controls	07-00	active
Sumter County	Wetland Protection Ord.	Prohibits development in wetland areas	01-01	active
Sumter County	Groundwater Recharge Area Protection Ord.	Regulates development in significant groundwater recharge areas	01-01	active
Sumter County	River Corridor Protection	Regulates development along protected river (Kinchafoonee between Sumter and Terrell Counties)	01-01	active

Terrell Co Health Dept.	State rules and regs. for on-site sewage mgt. sys.	Regulates installation of septic tanks	01-98	active
Terrell County	Zoning ordinance	Land development controls	05-93	
Terrell County	Wetland Protection Ord.	Prohibits development in wetland areas	02-01	active
Terrell County	Groundwater Recharge Area Protection Ord.	Regulates development in significant groundwater recharge areas	02-01	active
Terrell County	River Corridor Protection	Regulates development along protected river (Kinchafoonee between Terrell and Sumter Counties)	02-01	active
GA EPD	Concentrated Animal Feedlot Operations	Enforcement of wastewater treatment regulations applicable to feedlot operations	09-74	enforced as needed

Existing voluntary actions

RESPONSIBLE ORGANIZATION OR ENTITY	NAME OF ACTION	DESCRIPTION	ENACTED OR PROJECTED DATE (mm/yy)	STATUS
Ag producers	Best Management Practices	Maximizing production without causing deleterious effects on other resources	1990s	active
Ag producers	Nutrient Management Plans	Purchasers of poultry litter match nutrient needs of land to nutrient value of litter	2000	active
Soil and Water Conservation District	Promote voluntary adoption of agricultural best management practices	Provide leadership in the protection, conservation, and improvement of soil, water and related resources	1937	active
USDA Natural Resources Conservation Service (NRCS)	Environmental Quality Incentives Program and other T/A	Develop standards and specification regarding conservation practices, animal waste management systems, grazing activities, et. al. – implements state priorities.	1997	needs funding
Cooperative Extension Service	Disseminate information	Consultative assistance, information on nonpoint-related impacts on water quality, water quality monitoring, analysis of nutrients and other constituents in animal waste, nutrient management plans	1914	active
Farm Services Agency (FSA)	Water quality	Administration of cost-sharing and	1985	active

	improvement practices (Conservation Reserve Program)	incentive programs for practices that improve environmental quality of farms. Funds targeted for high-priority watersheds with water quality problems.		
Georgia Department of Agriculture	Disease control	Provides guidance in location of animal waste facilities and disposal of dead animals	1874	as needed
USDA Agricultural Research Service (ARS)	Agriculture research and monitoring	Research on grazing land systems and irrigation methods relevant to watershed-scale monitoring projects and nutrient movement in surface water and groundwater.		as needed
Resource Conservation and Development Council	Volunteer activism	Citizen activism in conservation of natural resources	1962	as needed

Additional recommended regulatory or other measures which should be implemented to reduce the loads of the TMDL parameter

ENTITY/ORGANIZATION RESPONSIBLE	NAME OF PROPOSED REGULATION/ORDINANCE/ OTHER	DESCRIPTION	ENACTED OR PROJECTED DATE (mm/yy)	STATUS
Webster County Board of Commissioners	Wetland Protection Ordinance	Prohibit development in wetland areas	07-01	Being developed
Webster County Board of Commissioners	Groundwater Recharge Area Protection Ord.	Regulate development in areas of significant groundwater recharge	07-01	Being developed
City of Preston	Wetland Protection Ordinance	Prohibit development in wetland areas	07-01	Being developed
City of Preston	Groundwater Recharge Area Protection Ord.	Regulate development in areas of significant groundwater recharge	07-01	Being developed
GA DNR-Game and Fish	Education program	Educate hunters of the environmental risk of disposing of wild game entrails in waterways	Year 1-5	Pending plan approval

III. SCHEDULE FOR IMPLEMENTING MANAGEMENT MEASURES OR OTHER CONTROL ACTIONS:

These must be implemented within five years of when the implementation plan is accepted by EPA.

IMPLEMENTATION ACTION	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Form stakeholders group	X				
Organize implementation work with stakeholders and local officials to identify remedial measures and potential funding sources	X				
Identify sources of TMDL parameter	X	X			
Develop management programs to control runoff including identification and implementation of BMPs (Phase I): Agriculture	X	X			
Forestry					
Urban					
Mining					
Organize and implement education and outreach programs	X	X	X*	X*	
Detect and eliminate illicit discharges		X*			
Evaluate additional management controls needed		X	X	X	
Monitor and evaluate results		X	X	X	X*
Reassess TMDL allocations		X	X	X*	X*
Provide periodic status reports on implementation of remedial activities		X	X	X	X
If needed, begin process for Phase II (next 5 years) and subsequent phases					X

* as needed

IV. PROJECTED ATTAINMENT DATE AND BASIS FOR THAT PROJECTION:

The projected attainment date is 10 years from acceptance of the implementation plan by EPA.

V. MEASURABLE MILESTONES:

- Number of management controls and activities already implemented ____21____

- Number of management controls and activities proposed in five-year work program ____5_____

- Number of management controls and activities actually implemented in five-year work period _____(to be completed after 5 years)

- Stream sampled to identify areas of concern See monitoring plan

- Other _____ _____

- Other _____ _____

VI. MONITORING PLAN:

Monitoring data that placed stream on 303(d) list will be provided if requested.

Describe previous or current sampling activities or other surveys to detect sources or to measure effectiveness of management measures or other controls.

ORGANIZATION	TIME FRAME	PARAMETERS	PURPOSE	STATUS
None known				

Describe any planned or proposed sampling activities or other surveys. (Scheduled EPD sampling can be found in the Basin Planning document.)

ORGANIZATION	TIME FRAME	PARAMETERS	PURPOSE	STATUS
EPD	2000	Fecal coliform	basin planning	underway
Georgia Southwestern State University and/or OMI	Years 1-2 (2001-2002)	Fecal Coliform	TMDL implementation - Establish base flow, confirm fecal presence and identify source(s)	Pending plan approval and funding

VII. CRITERIA TO DETERMINE WHETHER SUBSTANTIAL PROGRESS IS BEING MADE:

- % concentration or load change (monitoring program)
  55% reduction in loading and/or resultant concentrations from agricultyre or pasture land uses

- Categorical change in classification of the stream
  delisting is the goal of this TMDL plan

- Regulatory controls or activities installed
  monitor enforcement of wetlands protection and groundwater recharge area protection ordinances and implementation oh hunter education program

- Best management practices installed
  apply BMP tests to existing operations to identify and correct instances of nonconformance

COMMENTS – refer to attached pages

Additional Stakeholders from page 1:

Norman T. Adams
Janice, Haley, Elaine K. & Susan K. Allen
James Harold Bankston
Sam Booher
Burgin Land Limited
Tressie Mae Burns
Carters Farm, Inc.
Becky Champion (Columbus State University)
Charlotte Chambliss
Robert Ketez and Altonio Demetre Crawford
Charles R. Crisp
Elizabeth Elder (Georgia Southwestern State Univ.)
Georgia Pacific Corp.
J. S. Hearon, Jr.
Jimmy Howell
Larry David and Donna H. Jones
Mark Kennedy
Aaron D., Terry L. and Larry D. Kile
Gary W. and Blanche M. King
Ann and Jerry Kirksey
Gary J. Knight
Lillian J. Lowery
Peggy H. McGlaun
Mead Coated Board, Inc.
Craig C. Miller
C. C. Miller, Jr.
William E. Minick
James and Sue L. Moncus, Jr.
James and Martha Nowell
Scotty Palmer (NRCS)
Robert Lewis Rogers, Jr
William A. Rouse, Jr.
W. D. Sears
James Short
Wayne D. Smith
Don C. Smith
Rouf Stephens
Sullivan Properties LP
R.E. Sullivan est.
A. H. Sutherland, Inc.
Fain Sutherland
Roger Swain(Farm Services Agency)
Tolleson Lumber Co, Inc.
David Wagner (County Ext. Agent)
Foy Walker est.
Weyerhaeuser Co.

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